# LEAD POISONING PREVENTION & TREATMENT UPDATES

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## Welcome

The newsletter will provide you with information from the current research literature and updates on available resources related to lead poisoning prevention. With your help we will strive to reach the goal of eliminating lead as an environmental hazard for by 2010. This quarterly newsletter is a collaborative effort between the Virginia Department of Health's Lead-Safe Virginia Program and the University of Virginia's Virginia Children Division of Medical Toxicology.

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#### PHONE NUMBERS TO KNOW

- Lead-Safe Virginia, Virginia Department of Health (877) 668-7987
- Healthcare Lead Emergency Hotline (866) SOS-LEAD

# MEXICAN CANDIES: A SOURCE OF LEAD POISONING

Ingested flakes or dust from deteriorating lead paint in old homes is by far the most significant source of lead poisoning in children. Removing this source of lead from a child's environment is the primary mission of childhood lead poisoning prevention programs throughout the country, including Lead-Safe Virginia. Yet other less common sources may result in acute lead poisoning or contribute to an already elevated Blood Lead Level (BLL).

Since the early 1990's, tests performed by the U.S. Food and Drug Administration, the California Dept. of Human Services, and independent groups such as the Orange County (CA) Register have shown that candy made in Mexico sometimes contains hazardous amounts of lead.

#### Case 1:

In 1993, a 6-year-old boy in California was identified by routine screening during a well-child examination as having a BLL of 59 ug/dL. During 1993-1997, he underwent chelation therapy seven times to reduce his BLL. His five siblings, ranging in age from 11 to 17 years, also were tested within 9 months of their brother and had BLLs of 35-46 ug/dL; the mother had a BLL of 26 ug/dL. In 1995, two cousins, aged 3 and 7 years, were identified with BLLs of 50 ug/dL and 57 ug/dL, respectively. In addition, a ninth child (a niece of the index case patient) was born in 1996 and had a BLL of 26 ug/dL at age 1 year. No potential source of exposure was identified for the children and mother. However, on review of serial BLLs, elevations coincided with the return of the maternal aunt from visits to Mexico.

In 1997, repeated questioning of family members revealed that the aunt had transported in her personal baggage *Tamarindo* candy jam products, produced in Mexico and restricted from importation into the United States since 1993, and had given it to the

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#### ONLINE LEAD EDUCATION

New! Education in lead poisoning topics for health care professionals. Current courses :

- Lead Pathophysiology
- Sources of Lead Poisoning

More courses to follow. http://www.leadpoison.org

### RESOURCES

Download copies of the *Guidelines for Childhood Lead Poisoning Screening in Virginia*: http://www.vahealth.org/leadsafe/Rev\_Screening\_04.pdf

CDC Spotlights on Lead <a href="http://www.cdc.gov/nceh/lead/">http://www.cdc.gov/nceh/lead/</a>

U. S. Consumer Product Safety Commission <a href="https://www.cpsc.gov">www.cpsc.gov</a>

EPA Lead Page www.epa.gov/opptintr/lead/index.html

HUD Office of Lead Hazard Control www.hud.gov/offices/lead

Children's Environmental Health http://www.niehs.nih.gov/oc/factsheets/ceh/home.htm

National Lead Information Center http://www.nsc.org/ehc/lead.htm

National Center for Lead Safe Housing http://www.cehn.org/cehn/resourceguide/nclsh.html

DEVELOPED BY THE VIRGINIA DEPARTMENT OF HEALTH STATEWIDE SCREENING PLAN WORK GROUP, FOLLOWING CDC GUIDELINES AND VIRGINIA REGULATIONS.

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children. [CDC. Lead poisoning associated with imported candy and powdered food coloring--California and Michigan. MMWR 1998;47:1041--3.]

#### Case 2:

In August 2000, a Hispanic boy aged 4 years residing in Los Angeles County was identified through routine screening by California's Medicaid program with a BLL of 22  $\mu$ g/dL. When the child was tested at age 1 year, he had an acceptable BLL of 5  $\mu$ g/dL. Family members reported that he had been eating Mexican candies regularly for 3 years but denied use of folk remedies and imported pottery. An environmental investigation of their apartment, which was built in 1986, did not reveal high lead levels. The child was born in the United States and had not traveled to Mexico, and investigators identified no other potential sources of lead other than the Mexican candies. The family was advised not to allow the child to eat Mexican candies. As of December 2001, the boy's BLL had decreased to 11  $\mu$ g/dL. [CDC. Childhood lead poisoning associated with tamarind candy and folk remedies---California. MMWR 2002 / 51(31);684-686]

#### Why is lead in the candy?

Lead in Mexican candies is likely from one or more of these sources: traditional ceramic candy containers, cellophane candy wrappers, or from chili powder. (While unfamiliar to average American palates, chili powder is a popular ingredient in dozens of Mexican candy products).

#### Ceramic Containers

Tamarind is a fig-like pulpy fruit. Tamarind candies are frequently sold as sweet jellies in tiny clay pots glazed with greta, a lead-oxide compound also sometimes ingested as a Mexican folk remedy for digestive problems or as birth control. Efforts to convince the potters, mostly single-family operations in remote villages, to switch to non-leaded glazes have met with many cultural and practical barriers. The acidic nature of the fruit increases leaching of lead into the jelly. California issued a health advisory in 1993, when high lead levels were found in Picarindo candies in glazed ceramic pots. One teaspoon of that candy exposed children to 70 times the Food and Drug Administration's daily recommended limit of 6 µg of lead per day for children under age 6.

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#### Chili Powder

There are two versions of the guajillo (the chili most commonly used in candy) industry in Mexico. Chilies intended for American candy markets, where there are strict guidelines for lead levels in food, are washed after picking. They are ground in expensive stainless steel mills in an environment designed to control dust contamination, and packaged in labeled bags that can be traced back to the facility.

Dirt is not washed from chilies intended for Mexican markets, and farmers or sellers sometimes add soil and pebbles or bits of metal before grinding to increase weight and fatten profits. Exhaust from leaded-gasoline powered engines is a known contributor of lead in Mexican soil. (Mexico only began phasing out leaded gasoline in the 1990's). Also, these mills are often made of old parts soldered with lead. In 2004 The Orange County (CA) Register hired a laboratory to conduct 55 tests of fresh, dried and ground chili intended for Mexican candy makers. More than 90 percent of the chili-powder samples tested high for lead. Results from the chili powder and also soil tests can be viewed at <a href="http://www.ocregister.com/investigations/2004/lead/docs\_studies.shtml">http://www.ocregister.com/investigations/2004/lead/docs\_studies.shtml</a>.

#### Wrappers

The colorful ink on cellophane wrappers of many Mexican candies have tested very high for lead; especially the yellow and orange pigments. Fuortes and Bauer found levels as high as 16,000 ppm in a *Pulpa Rindo* wrapper: more than 25 times the CDC's acceptable limit. [Fuortes L, Bauer E. Lead contamination of imported candy wrappers. Vet Hum Toxicol 2000;42:41--2.] Not only does lead leach from the wrapper into the candy, but children readily lick, chew, or even swallow the wrappers to remove all bits of their sticky treat. Some manufacturers include a plain cellophane wrapper as a leaching barrier underneath the printed one on candies intended for the U.S. so that the candy won't test high for lead. But the wrappers are still dangerous.

#### Why Virginia consumers are at risk

The candies may be causing health problems in Mexican children, but they are causing problems in the U.S. as well. Unfortunately, candies made for local distribution and for export to the U.S. are indistinguishable and packaged identically. And both types end up in U.S. stores. This has contributed to a broad range of lead test results, and hindered attempts at getting them removed from American markets.

In Virginia, the Hispanic population increased from .026% in 1990 to 4.7% in 2000, and the growth is largely due to Mexican immigration, according to the U.S. Census Bureau. The demand for familiar candies from home has increased accordingly; Mexico has tripled its candy sales in the U.S. since 1994. Illegal candy comes across the 150-mile border in many ways, often in small shipments that don't alert customs officials who are more focused on anti-terrorism.

In the past decade, numerous public health groups, politicians, and government agencies have addressed the problem of lead in candy in a variety of public alerts, import alerts, recalls, and introduced legislation. In 2004 The FDA issued the following statement: "The FDA is aware of a problem associated with lead contamination of some Mexican candy products...and is advising parents, care providers, and other responsible individuals that it would be prudent to not allow children to eat these products at this time."

Until there is more marked success at removing the high-lead candies from U.S. markets, health care providers can play an important role in protecting children by educating families of the potential dangers of candy from Mexico. In 1998, the CDC advised:

"Successful case management requires a systematic review of all potential sources of lead exposure. This review includes thorough history-taking and home inspection to prevent further lead exposure or clinical lead poisoning and to avoid increased lead absorption should chelation therapy be required. When a child's BLLs are persistently elevated and case-management efforts fail to identify a source, screening other members of the index household for blood lead should be considered. Detecting excess lead exposure in more than one family member of the same household can be important to directing the

investigation toward a shared source of exposure. Blood from other household contacts, extended family, or visitors that may regularly share this exposure source also should be screened for lead."

A list of Mexican candies that have repeatedly tested high for lead, including photos and lead test results, can be found here: http://www.ocregister.com/investigations/2004/lead/pdf/poster\_english.pdf.

#### Sources:

Centers for Disease Control and Prevention. Lead poisoning associated with imported candy and powdered food coloring—California and Michigan. MMWR 1998;47:1041--3.

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Medlin, Jennifer. Lead: Sweet Candy, Bitter Poison. Environmental Health Perspective 2004; 112(14): A803.

McKim, Sharon, Heisel, et al. "Toxic Treats." <u>Orange County Register</u> 25 April 2004. http://www.ocregister.com/investigations/2004/lead/part1.shtml

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